

## Remote Control & Backup for Railroad Wayside Devices

### SC-ADT for C&S Backup/Backhaul

General DataComm's SC-ADT devices are uniquely suited for railroad communication and signaling (C&S) applications where its IP and async data transfer and terminal server capability can back up the critical communication for wayside devices. Standalone or NEBS-certified SC-ADT deployed at individual control point locations throughout an Advanced Train Control System (ATCS) network can provide multiple simultaneous applications, such as:

- Provides primary or backup data transport
- Supplies Telnet cut-thru to manage wayside controllers
- Accesses diagnostic ports of remote equipment
- Reports environmental or security alert conditions
- Forces power reset of remote controllers

SC-ADT ensures a seamless backup path for these remote devices in the event of a primary network outage.

### SC-ADT Features & Benefits

- Secure, high performance, low-cost, secure transfer of railroad C&S data between sites utilizing IP networks.
- 8, 16 or 32 ports individually configurable as terminal server, transport or contact sense ports.
- 8, 16 or 32 ports individually configurable for normal (single switch) or range (Hi/Lo) contact sensing.
- Ports 1 and 2 can be configured for modem mode (internal modems), or for bypass mode on PPP ports for IP transport (port forwarding for NAT transversal).
- Supports alarm reporting with custom text strings and SNMP traps via port alerts between network locations.
- Provides eight input ports and two output ports dedicated to contact sensing or contact action.
- Rackmount deployment is NEBS Level III Certified.
- Power dissipation less than 6 watts.
- Supports LAN connection to 10/100Base-T Ethernet.

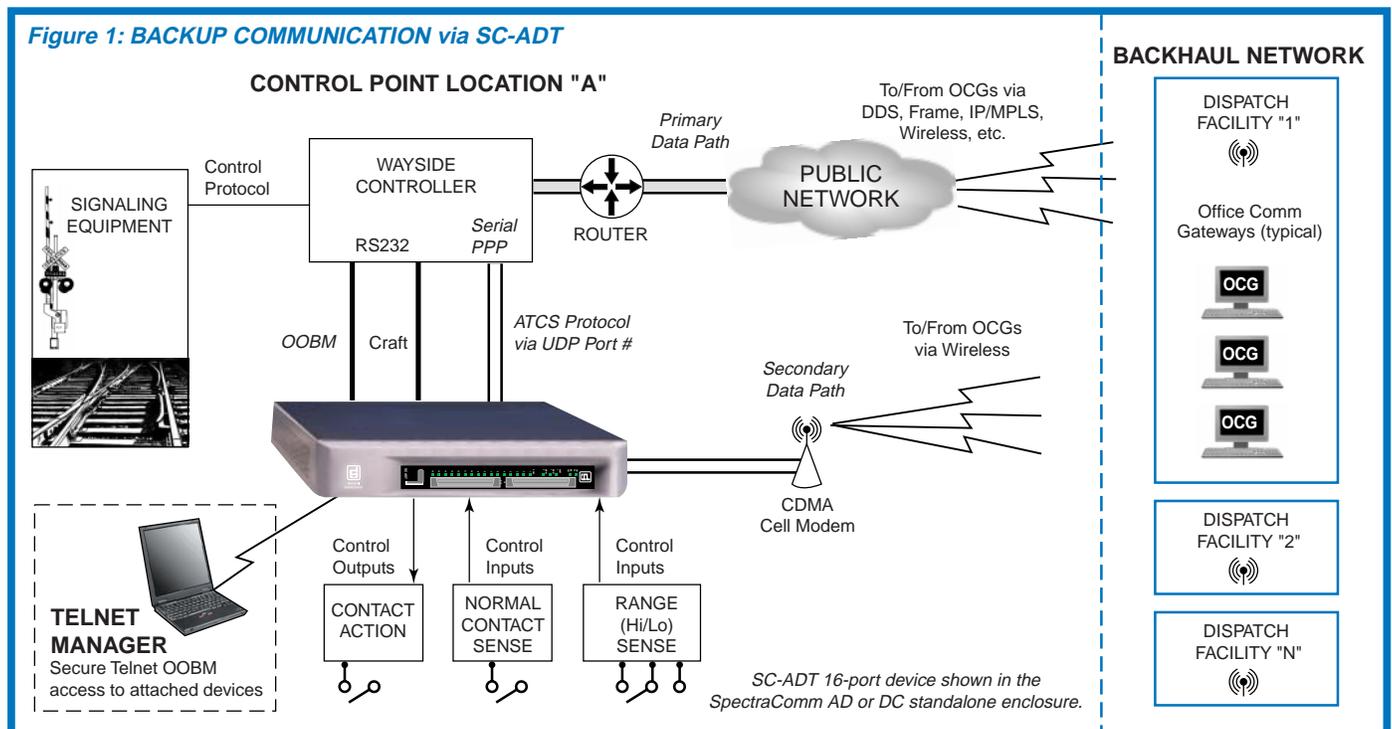
*Figure 1 shows SC-ADT at a control point location running simultaneous C&S applications:*

SC-ADT ports configured for Telnet/SSH sessions, for bypass transport (port forwarding), and to convert async PPP data to IP for transport over a cellular data network.

SC-ADT managed via Telnet, SSH, SNMP, FTP, TFTP and HTTP from the Dispatch Facility.

SC-ADT rear panel DB-25 connector providing contact input and output ports for control and remote monitoring for environment, security, and device activation.

SC-ADT front panel ports configured for range and/or normal contact sensing.



## MIGRATING TOWARDS FUTURE RAILROAD SYSTEMS

### Backup Comm Path to OCGs

Railroad C&S networks are primarily used to support communication and signaling between Wayside Controllers at individual control point locations, and the Office Communication Gateways (OCGs) at the Dispatch Facilities. These Wayside Controllers collect the train and track infrastructure data from the signaling network which supports wayside color-light and position-light signals, coded track circuits, cab signaling, centralized traffic control and grade crossing warning devices.

As the network architecture changes and as railroads migrate to IP/MPLS networks, existing Wayside Controllers must be supported by remote diagnostics and a secondary (backup) path for data in the event that the primary IP network fails. An SC-ADT deployed with each Wayside controller will provide a simultaneous secondary path that transports data and diagnostics from each individual control point location to multiple controllers (OCGs) at dispatch facilities.

**Figure 2, "Application A"** demonstrates SC-ADT providing diagnostics and a backup communication path to OCGs.

**Figure 2, "Application B"** demonstrates GDC's Xedge MSPX technology in a forward-looking C&S network.

### Converged Services for Highspeed Rail

In forward-looking railroad C&S networks, General DataComm's Xedge MultiService Packet Exchange edge switching and access technology migrates the existing infrastructure to a sophisticated, service-rich and cost-efficient broadband network. Xedge MSPX achieves integrated communication architecture that anticipates the needs of tomorrow's enhanced automation of real-time train control, signaling, train routing, and mission critical voice, video and data communication services over the WAN. By consolidating voice, video and data services on a single network, costs are reduced by eliminating the need for expensive parallel networks.

Today's railroad C&S networks with Xedge MSPX technology creates a flexible and robust foundation for the railroad industry's dynamic business evolution and emerging standards and protocols, such as Positive Train Control; POS for ticketing and food service; Voice over IP to engineers and for emergency services; Voice over IP and Internet access to passengers, and more.

Xedge integrates TDM, Frame Relay, ATM, and emerging Ethernet services over an MPLS or ATM WAN, leveraging wireless communication benefits and superior QoS over the same network.

